WHAT IS CLAIMED IS:

1. In a signal processor for processing at least two measured signals S_1 and S_2 each containing a primary signal portion s and a secondary signal portion n, said signals S_1 and S_2 being in accordance with the following relationship:

$$S_1 = s_1 + n_1$$

$$S_2 = s_2 + n_2$$

where s_1 and s_2, and n_1 and n_2 are related by:

$$s_1 = r_a s_2 \quad and \quad n_1 = r_v n_2$$

and where r_a and r_v are coefficients,

a method comprising the steps of:

determining a values for the coefficient r_a which minimizes correlation between s_1 and n_1;

calculating the blood oxygen saturation from said value of r_a; and

displaying the blood oxygen saturation on a display.

2. In a signal processor for processing at least two measured signals S_1 and S_2 each containing a primary signal portion s and a secondary signal portion n, said signals S_1 and S_2 being in accordance with the following relationship:

$$S_1 = s_1 + n_1$$

$$S_2 = s_2 + n_2$$

where s_1 and s_2, and n_1 and n_2 are related by:

$$s_1 = r_a s_2 \quad and \quad n_1 = r_v n_2$$

and where r_a and r_v are coefficients,

a method comprising the steps of:

determining a value the coefficients r_a which minimize correlation between s_1 and n_1; and

processing at least one of the first and second signals using the determined value for r_a to significantly reduce n from at least one of the first or second measured signal to form a clean signal.

3. The method of Claim 2, further comprising the step of displaying the resulting clean signal on a display.

4. The method of Claim 2, wherein said first and second signals are physiological signals, further comprising the step of processing said clean signal to determine a physiological parameter from said first and second measured signals.

5. The method of Claim 4, wherein said physiological parameter is arterial oxygen saturation.

6. The method of Claim 4, wherein said physiological parameter is an ECG signal.

7. The method of Claim 2, wherein the first portion of said measured signals is indicative of a heart plethysmograph, further comprising the step of calculating the pulse rate.

8. A physiological monitor comprising:

a first input configured to receive a first measured signal S_1 having a primary portion, s_1, and a secondary portion n_1;

a second input configured to received a second measured signal S_2 having a primary portion s_2 and a secondary portion n_2, said first and said second measured signals S_1 and S_2 being in accordance with the following relationship:

$$S_1 = s_1 + n_1$$

$$S_2 = s_2 + n_2$$

where s_1 and s_2, and n_1 and n_2 are related by:

$$s_1 = r_a s_2 \quad and \quad n_1 = r_v n_2$$

and where r_a and r_v are coefficients;

a scan reference processor, said scan reference processor responsive to a plurality of possible values for r_a, to multiply said second measured signal by each of said possible values for r_a and for each of the resulting values, to subtract the resulting values from the first measured signal to provide a plurality of output signals;

a correlation canceler having a first input configured to receive said first measured signal, and having a second input configured to receive the plurality of output signals from said saturation scan reference processor, said correlation canceler providing a plurality of output vectors corresponding to the correlation cancellation between the plurality of output signals and the first measured signal;

an integrator having an input configured to receive the plurality of output vectors from the correlation canceler, the integrator responsive to the plurality of output vectors to determine a corresponding power for each output vectors; and

a extremum detector coupled at its input to the output of the integrator, said extremum detector responsive to said corresponding power for each output vector to detect a selected power.

9. The physiological monitor of Claim 8, wherein said plurality of possible values correspond to a plurality of possible values for a selected blood constituent.

10. The physiological monitor of Claim 9, wherein said selected blood constituent is arterial blood oxygen saturation.

11. The physiological monitor of Claim 9, wherein said selected blood constituent is venous blood oxygen saturation.

12. The physiological monitor of Claim 9, wherein said selected blood constituent is carbon monoxide.

13. The physiological monitor of Claim 8, wherein said plurality of possible values correspond to a physiological concentration.

14. A physiological monitor comprising:

a first input configured to receive a first measured signal S_1 having a primary portion, s_1, and a secondary portion n_1;

a ~~second~~ input configured to received a second measured signal S_2 having a primary portion s_2 and a secondary portion n_2, said first and ~~said second~~ measured signals S_1 and S_2 being in accordance ~~with the~~ following relationship:

$$S_1 = s_1 + n_1$$

$$S_2 = s_2 + n_2$$

where s_1 and ~~s_2~~ and n_1 and n_2 ~~are related by~~:

$$s_1 = r_a s_2 \quad and \quad n_1 = r_v n_2$$

and where r_a and r_v are coefficients;

a transform module, said saturation transform module responsive to said first and said second measured signals and responsive to a plurality of possible values for r_a to provide at least one power curve as an output;

an extremum calculation module, said extremum calculation module responsive to said at least one power curve to select a value for r_a which minimizes the correlation between s and n, and to calculate from said value for r_a a corresponding saturation ~~value~~ as an output; and

a display module, said display module responsive to the output of said saturation calculation to display said saturation value.